

# LOAD RUNNER

THE GALAXY'S FIRST COMPUTER COMIC

IF THIS WAS REALLY THE WILD WEST, THE SUN WOULD BE HARSH AND SCOWLING IN THE SKY. BUT FOR **LOAD RUNNER**, TRAPPED INSIDE A HUGE **COMPUTER**, THERE IS NO SUN...AND, CAUGHT IN A SERIES OF **DEADLY GAMES**, LITTLE HOPE...

OKAY, STRANGER... IF YOU'RE READY, **DRAW!!**

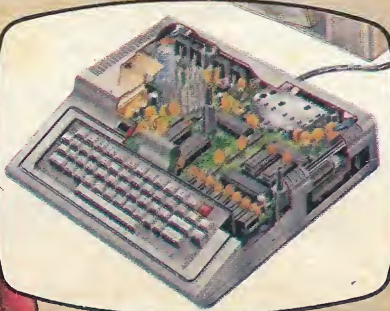
AND **PETRA HAWKE**, **LOAD RUNNER**'S HUMAN COMPANION, CAN ONLY WATCH HELPLESSLY...

HOW CAN **LOAD RUNNER** OUTDRAW AN **ANDROID?**

**WELCOME TO  
SIMIAN'S WORLD**



**COMPUTER  
PIN-UP**

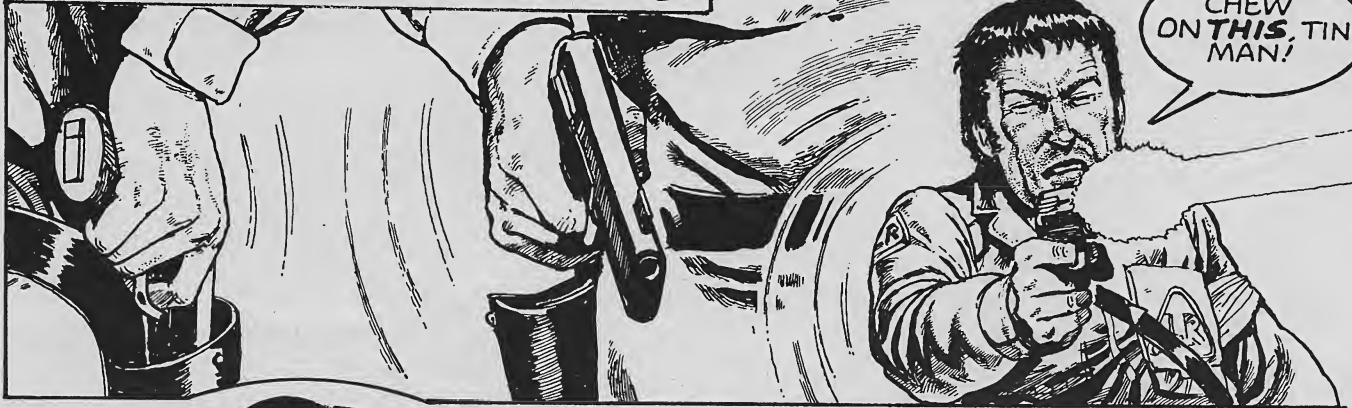


**TROUBLE ON  
THE TERRACES**





THEN LOAD RUNNER MOVES LIKE **LIGHTNING!**



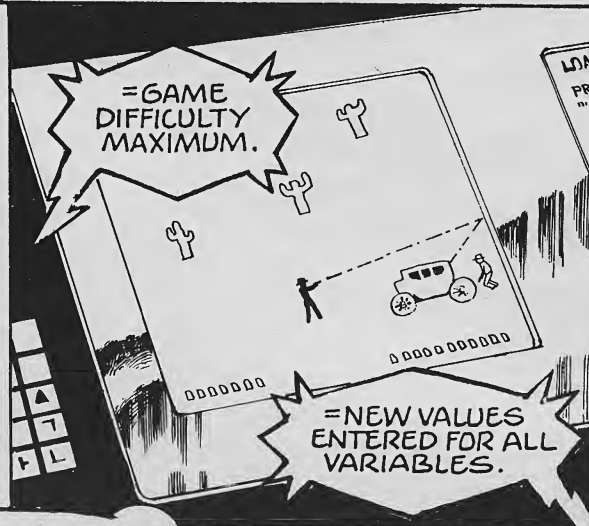
CHEW  
ON **THIS**, TIN  
MAN!



WHA--?

MY  
**CRASH GUN**...  
HAD NO  
EFFECT!

ELSEWHERE, THE COMPUTER OBSERVES  
THE DUEL WITH INHUMAN DETACHMENT...



=GAME  
DIFFICULTY  
MAXIMUM.

=NEW VALUES  
ENTERED FOR ALL  
VARIABLES.

GOT TO  
GET BEHIND  
THIS STAGECOACH  
OR I'M DONE  
FOR!



C'MON,  
YUH CRITTER...  
AIN'T NO GOOD  
HIDIN'!

MY CRASH  
GUN SHOULD HAVE  
REDUCED THAT ANDROID  
TO **SCRAP**. THE POWER  
CELL MUST BE EXHAUSTED.  
BUT THERE'S **ONE**  
**CHANCE**...

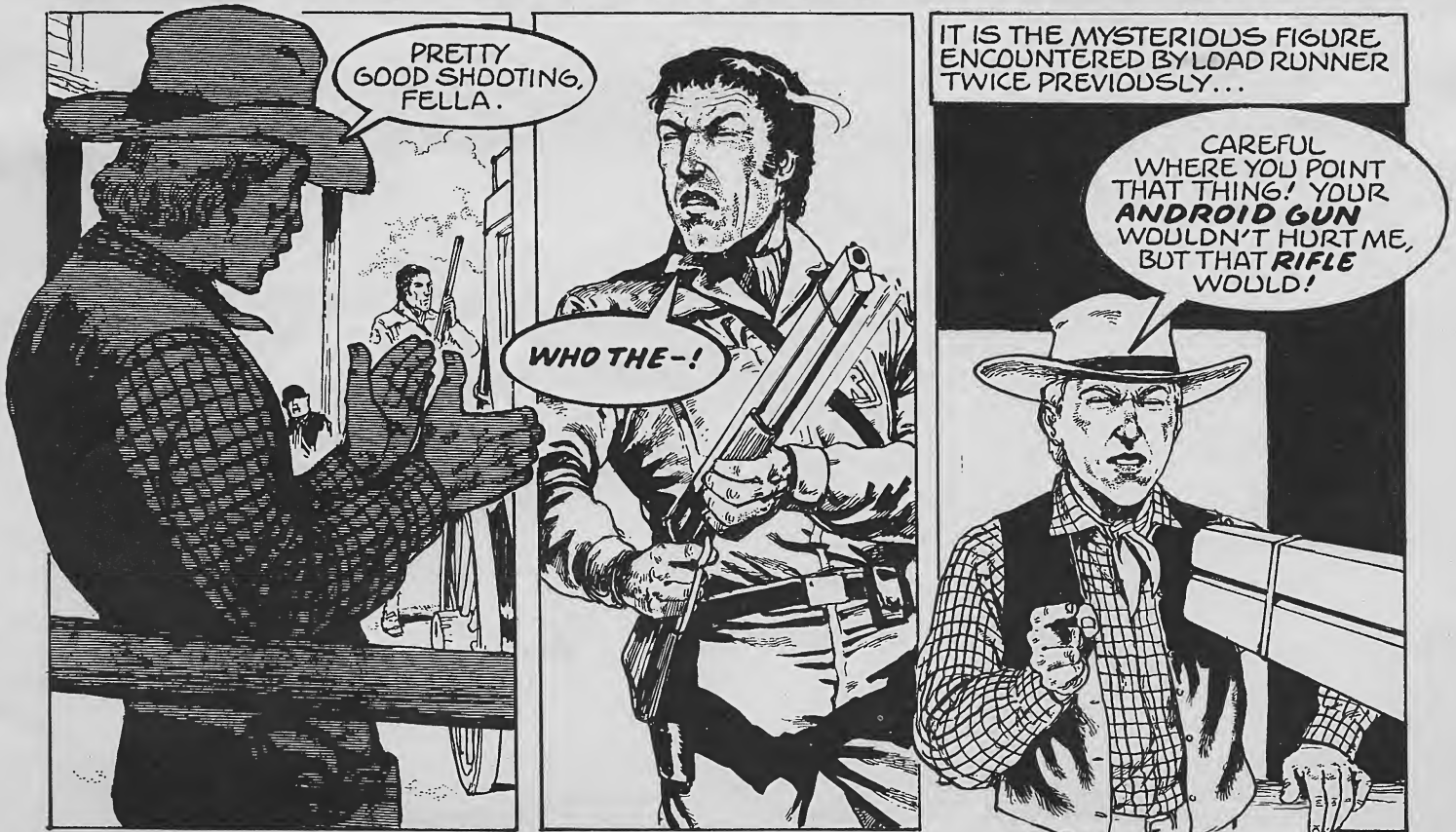
THINKING QUICKLY, PETRA GIVES  
LOAD RUNNER THAT CHANCE...



HEY,  
METAL MICKEY!  
YOU COULDN'T HIT  
A **BARN DOOR**!



HUH?





# LOAD RUNNER

... IN THE DEADLY **CHES** GAME AND LATER, IN THE **DOG**FIGHT.



**YOU!**  
I WAS BEGINNING  
TO THINK WE'D **LOST**  
YOU IN THE  
**GAMES!**

WELL,  
WE MEET AGAIN.  
NOW WE CAN WORK  
TOGETHER.



**LOAD RUNNER!**  
**QUICK!!**

THE GUNMAN—  
HE'S BLEEDING!  
HE'S **HUMAN!**

YOU'RE  
RIGHT, AND HE'S  
BARELY **ALIVE!**...  
NO WONDER MY CRASH GUN  
WAS USELESS. IT  
ONLY WORKS ON  
**ARTIFICIAL**  
**CONSTRUCTS.**



DON'T YOU  
**UNDERSTAND?**  
I'VE ALMOST  
**KILLED HIM!**

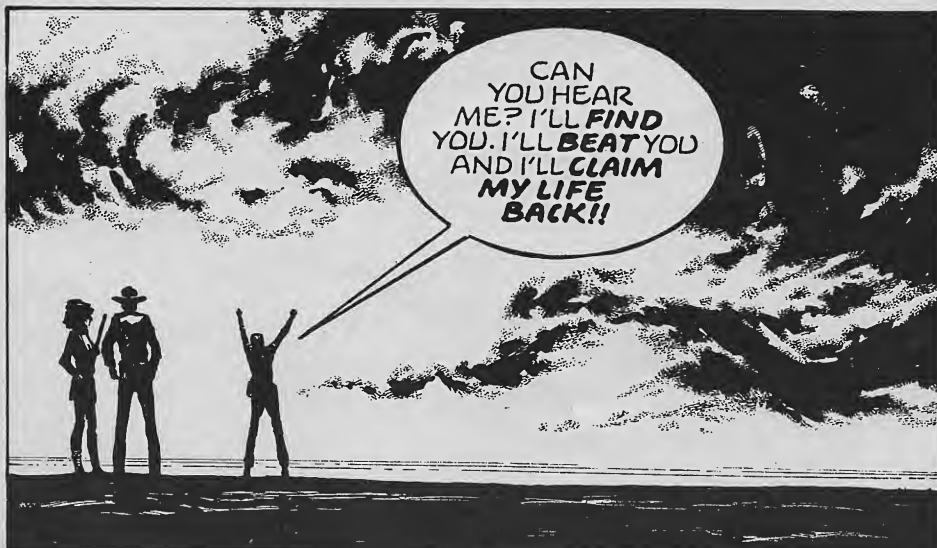


BUT  
YOU WEREN'T  
TO KNOW. YOU  
MUSTN'T BLAME  
YOURSELF...

THAT'S  
NOT THE POINT.  
WHAT IS THIS  
COMPUTER **DOING**  
TO US? I THOUGHT  
HE WAS AN  
**ANDROID!**



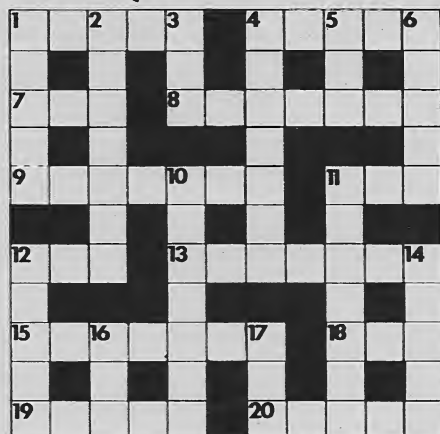
IT'S  
TREATING US  
LIKE RATS IN A  
CAGE—GAMES IN ITS  
**MEMORY**... AND THAT'S  
WHERE IT'S  
KEEPING MY  
**IDENTITY!**



CAN  
YOU HEAR  
ME? I'LL **FIND**  
YOU. I'LL **BEAT** YOU  
AND I'LL **CLAIM**  
MY LIFE  
**BACK!!**



## Wordplotter 13



Across

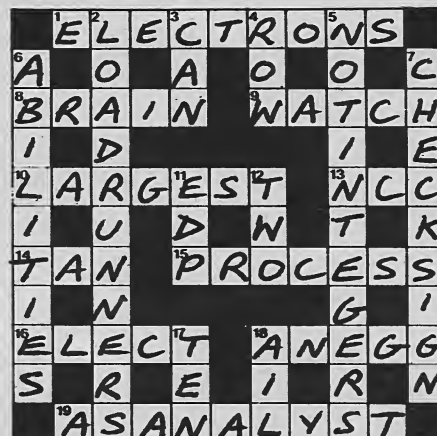
1. A hundred exist for Britain's computing uncle (5)

4. Arrays on fighting-ground for processor (5)
7. Last statement some micros need (3)
8. Sheet of paper and insect make a colourful display (7)
9. Main constructional material of a micro (7)
11. Where the posh printer goes to sleep? (3)
12. Catch this vehicle carrying data! (3)
13. What to do to a mystery game (5,2)
15. You must do this when playing Adventure ... (7)
18. ... though this will help unlock the secrets (3)
19. 1,024 x 8 bits (5)
20. Lovingly looked after the equipment (5)

Down

1. Best adjective for the products of 1 across (5)
2. They really had to fight Space Invaders in America (7)
3. Electronic data processing (3)
4. Like Mr Spock, computers are (7)
5. Where to play a game of Pirates (3)
6. Dates mixed up when fed up with computing (5)
10. Data function of any computer (2,5)
11. A CB user ... (7)
12. ... and the key to press for a relaxing drink (5)
14. Played with a video game computer (5)
16. Employees are glad computers work this out (3)
17. The Common Market (3)

## Wordplotter 12 Solution



## Wordplotter 13

Solution overleaf

## INPUT/OUTPUT

### Great Trumbull

I TOTALLY DISAGREE with the reader who said Trumbull's World was boring. On the contrary, Trumbull's World was a very good story, as is Load Runner. School for Software was excellent — much better than the previous Time Plan 9. I would rate all stories 10/10 at present, apart from Rom & Ram. Never have I found a comic which has so many excellent stories.

Farid Howladar, 13, London E11

### Only the best

I THINK *Load Runner* is the best (and only) computer comic in the world! I don't yet have a computer but might be getting one for Christmas. *Load Runner* is a bit expensive, but it's quality that counts and there is plenty of it. Personally I'd buy it every day if I could.

Mark Murphy, 12, Peterborough

### Program ERROR

PAUL LEATHLEY'S Texas TI99/4A program in *Load Runner* Printout No 10 did not run correctly. I suggest the following line corrections:

320 call color (G,12,2)  
410 for I=2 to 14 step 2  
460 Z=77

1220 Input "your initials":B\$

This should now be all right!

Steven Gillingham, 11, Leicestershire

### Useful data

IN PRINTOUT NO 11 you state: "The Golden Baton is different from most other adventure games as it uses high-resolution graphics, and no text to describe the situations you are in". This is not true. If, when in high-resolution mode, you press the 'Enter' key the picture will disappear, and the adventure continues in the normal way. I hope this information is of use to you.

A Load Runner reader

● I am sure that other readers will be grateful for that data and the oversight on the part of my operators will not happen again.

### Computajokes

WHY did the computer RUN across the road?  
To ENTER the CHIP shop!

Which computer has a negative attitude?  
The Electron!

Which computer is connected with the theatre?  
The Old Vic!

The Old Vic!

Robert Moody, Sidcup, Kent

### Competition Winners

Below are the winners of the Computer War Competition in Printout No 11.

Daniel Symonds, 12, Truro, Cornwall

Derren Ward, 12, Rotherham, S. Yorks

Richard Heading, 10, Southampton

John Cotton, 11, Great Yarmouth

Andrew Spencer, 14, Erdington, Birmingham

Daniel Rogers, 12, Halesworth, Suffolk

### Hurrah!

CONGRATULATIONS on the continuation of your computer comic *Load Runner*. We have bought each copy you have issued since the comic started in June. Hurrah for *Load Runner* and its competitions!

Rachael Felstead (Mum) and  
Thurstan Felstead, Middlesex





## The lucky winners

DISPLAYED on this page are the photographs of the lucky Decoders who have claimed their prizes. Many Decoders, however, have not claimed their prizes, and their numbers are listed at the bottom of the page.



Michelle Winshow



Nick Allgood



David Isherwood



John Breedon



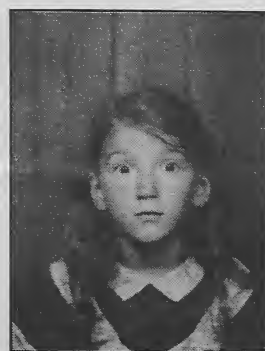
Martin Bennett



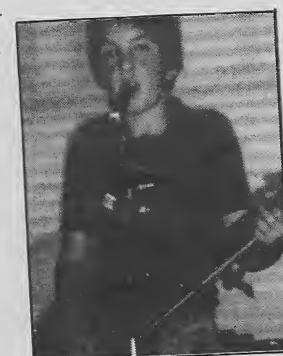
Andrew Colver



Anthony Kirke

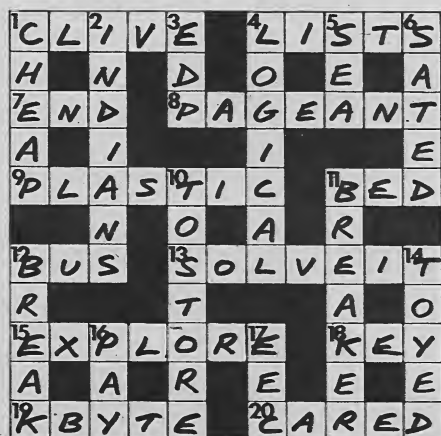


Elanor Ferguson



Robert Edmonds

### Wordplotter 13 Solution



### Have you claimed your prize?

IS YOUR MEMBERSHIP NUMBER listed in the coded printout below? If it is, this is your last opportunity to claim your prize. Write your name, address and membership number on a postcard and post it to: The Controller, *Load Runner* Decoders, ECC Publications, 196-200 Balls Pond Road, London N1 4AQ. If you have won an exclusive *Load Runner* T-shirt don't forget to state whether you require a small, medium or large size.

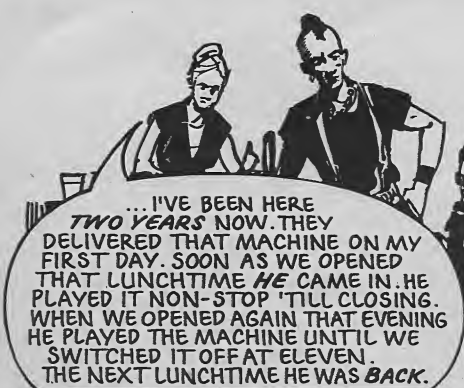
#### T-Shirt Winners

IHU ZULI QWI HAHU  
IHU QWI TAVU IHU  
IHU IHU NAX TAVU  
IHU ZULI UAERQ TISL  
IHU QWI TAVU ZULI  
IHU QRLUU ZULI HAHU  
IHU ZULI ZULI NUVUH

#### Mainframe album Winners

IHU IHU QRLUU UAERQ  
IHU QRLUU IHU TISL  
IHU QWI NUVUH TAVU  
IHU ZULI QRLUU ZULI  
IHU ZULI HAHU UAERQ  
IHU QWI TAVU NUVUH  
(Keyword No 1)







AN HOUR AND A HALF LATER...

I'VE HAD ABOUT ENOUGH OF THIS, COL. THAT WEIRDO'S BEEN PLAYIN' THAT GAME FOR AGES!

ARE YOU THINKIN' WHAT I'M THINKIN'?

YEAH. LET'S GO.

NOW, LADS...

RELAX, LOVE. THIS'LL ONLY TAKE A MINUTE.

LESS.

...A REAL SHAME!

FANCY A BREAK?

GOOD GAME, MATE?

NO. I CAN'T ... NOT YET...

THAT'S A SHAME...

OH!

EXCUSE MY BOOT!

NO! YOU DON'T UNDERSTAND! I HAVE TO SAVE THE EARTH!

YEAH, WE KNOW.

JUST RELAX, PAL. STEVE'S PRETTY GOOD AT THIS.

BOYS!

SCRIPT-HUNTER TREMAYNE  
ARTWORK-JOHN CANNING  
LETTERS-STEVE POTTER

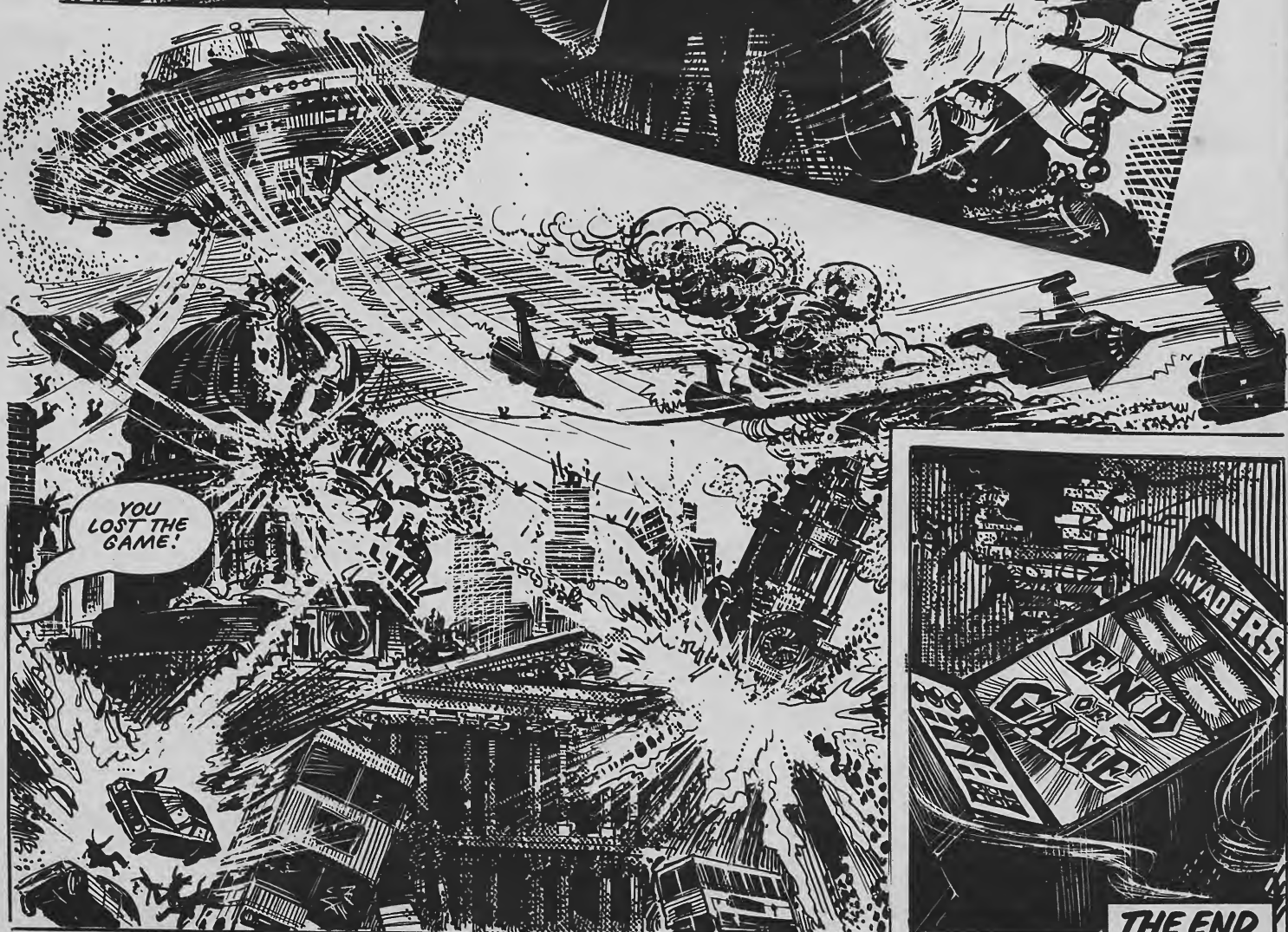


# TALES FROM THE MEMORY BANK



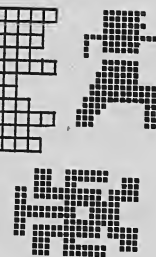


# TALES FROM THE MEMORY BANK



# GAMESTERS

VIDEO GAMES



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You'll enjoy ★ big discounts ★ a special buy-back scheme ★ second-hand games ★ Club Newsletter ★ catalogue of titles ★ and lots more besides ★

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Name ..... Age .....

Address .....

..... PostCode .....

I own an ☐ Atari 2600, ☐ Intellivision, ☐ Coleco  
Vectrex, ☐ Spectrum, ☐ VIC 20; ☐ BBC

I expect to own a ..... soon.

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London N1 4AQ

Name ..... I enclose a cheque for £ .....

Address ..... Signed

.....  
.....





**HI! I'M BRAINY** and I really rate computers. I'm in *Load Runner* every issue so write to me at 196-200 Balls Pond Road, London N1 4AQ and I'll do my best to answer any questions you have.

Remember, **Brainy's** the name and, by the way, I will pay £1 to anyone whose name is mentioned. Write away!

# BRAINY'S BRAINBOX

## Trading in your ZX-81

I HAVE an old ZX-81 and want to trade it in and buy a Spectrum. Is it possible and if so, where?

*Hywel Davis, Wantage.*

I AM AFRAID I cannot help you. That is only possible, and even then rarely, for big computers. The only thing I can think of is if a local computer shop is making a special offer. On the other hand, you could try selling it second-hand. I think that trading-in is unlikely.

\* \* \*

## First-time buyer

I INTEND to buy a computer for the first time and I do not know whether to buy a cheap, temporary computer, to see if I like them, or to buy a good computer I shall keep permanently. Could you help me?

*Paul Knight, Woodstock.*

IT DEPENDS on how you are to use the computer. If you want to program it, you could buy a Sinclair ZX-81 for £40, the cheapest computer available, but it has no sound, no colour nor high-resolution graphics. It will introduce you to Basic. If you want to play games, think about the Vic-20, Spectrum, Atari, BBC, Elec-

tron or Commodore 64. The Spectrum has the biggest software range available. If you want to do both, then all those mentioned, except ZX-81 and Atari, are suitable.

\* \* \*

## Protected by copyright

MY FRIEND has found a way to copy game tapes. Is this illegal?

*Paul Nicholls, Newbury.*

IT CERTAINLY is illegal. It is unfair to program-writers and if they stop writing because they are not making money, you would suffer, too. So I advise your friend to stop it or we will all suffer and *Load Runner* might stop, too, and that would never do.

\* \* \*

## Micros are hot stuff!

WHEN I have been playing on my computer for a long time it becomes very hot. My dad says that is dangerous and he makes me switch off at once. I do not like having to stop in the middle of my game. What shall I do?

*Jane Cartwright (8),  
Bradford, Yorks.*

IT DOES NOT matter; most com-

puters become hot after they have been switched on for some hours; the amount of time varies with the computer. There is something wrong if the picture on the screen becomes at all distorted, especially if it is within an hour or so of being switched on. Always make sure that you turn off the machine as soon as you have finished using it.

\* \* \*

## Money back guaranteed?

A FEW WEEKS ago I went to a computer fair and bought a tape for my Spectrum. When I arrived home I found it would not load. I have tried many ways to load the tape but it will not. Now I want my money back but do not know what to do. Can you help me?

*Kathy Docker, Hall Green,  
Birmingham.*

IF YOUR TAPE is second-hand, I cannot help you. You could try, I suppose, writing to the publisher of the tape to see what happens, but unfortunately it does not seem very helpful because you do not know what the previous owner did. It is a risk you take when you buy second-hand software. If, however, your tape was new, you can write to the owner of the stall—addresses can be found in your show guide—and ask. Failing that, try the publisher which, if it is reputable, should have its address on the box of your tape. Otherwise, I am afraid you will have to put it down to experience.

\* \* \*

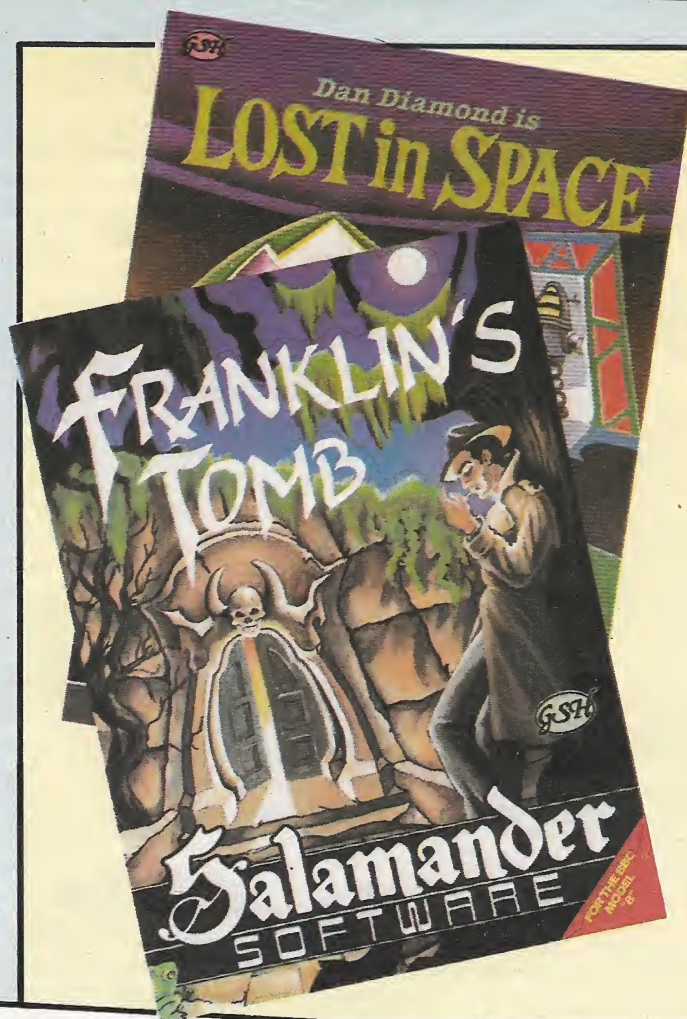
## Which tape recorder?

WE HAVE recently bought a BBC micro. I have become bored of making up programs, and I want to be able to use cassettes. Should I order a BBC tape recorder or is it satisfactory to use a normal one?

*Stuart Bellamy (11)  
Stratford-upon-Avon,  
Warwickshire.*

SO FAR as I know, the official BBC cassette recorder is no better than any other in the shops and it is not cheap. If you are in a hurry, buy a "normal" one. Take the cassette lead and manual to a shop such as Currys. If you order a BBC recorder, it may take a few weeks to arrive.





## Private eye Dan Diamond

IN THIS TEXT adventure for the BBC Model B you play the part of Dan Diamond, a detective with a terrible, pseudo-American accent. A description of your location and what you are carrying appears on screen at all times, while illustrations of various locations appear in an accompanying booklet.

Problems in early locations can be solved quickly—try shouting when you reach a dead end—moving you further into the crypt where, as the booklet warns, there are both red herrings and blue kippers to be found in *Franklin's Tomb*.

The game is enjoyable, although minor flaws are annoying at times. The program does not respond to some words, leaving the player waiting for an answer. The spelling also is not perfect which is frustrating when a word has been typed-in correctly.

Fun, 6; addictive, 7; graphics, 0.

**LOST IN SPACE** forms the second part of the Salamander Software Dan Diamond trilogy for the Dragon 32. It is a simple text-only adventure.

The story is that you are drifting through space aboard a derelict spaceship and must find your way through a maze of rooms to the bridge to regain control of the vessel. Be careful not to press too many buttons on your spaceship if you do not want the security robots to rush in and over-power you.

Aside from those difficulties, the computer responses are varied and lively enough to make you want to persevere with the game. If desperate, you can even send to Salamander Software for a help sheet to save you from your predicament.

*Lost in Space* and *Franklin's Tomb* are produced by Salamander Software, 17 Norfolk Road, Brighton, East Sussex BN1 3AA, and cost £9.95 each.

Fun, 6; addictive, 7; graphics, 0.

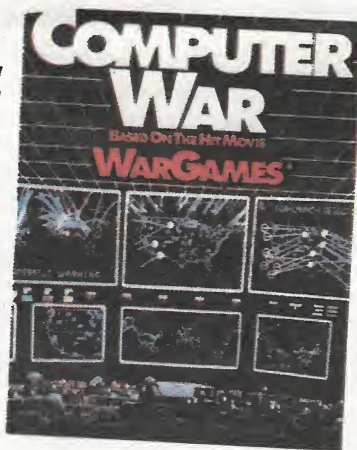
## Crack the code

**COMPUTER WAR** is based on the hit movie *WarGames* and if you like the movie the game is a must. Someone has activated a nuclear war simulator program accidentally in the American defense computer NORAD and the player's task is to prevent the destruction of two continents.

A map of North America is shown alongside a display from the NORAD computer. White blips, which represent missiles, are shown on the map and the player has to destroy all of them before they reach their missile base targets. If the player is successful he has a chance to crack the computer code and shut down one of the bases; when all the bases have been shut down and the NORAD computer is saved, a new wave begins.

The game makes good use of the Atari graphics capabilities and produces some excellent special effects. *Computer War* is available in cartridge form from Thorn-EMI video and is a little expensive at £31.95.

Fun 7; Addictive 7; Graphics 9.



## Space Quest

IN **SPACE QUEST**, for the 16K Oric, the aliens are, as usual, doing what they like best — bombing almost defenceless Earth cities. The player's task is to intercept and destroy the falling bombs. There is, however, a catch — the player's cursor must be the same colour as the bomb which is to be detonated. Changing colour can be done by using keys 1, 2, 3 and 4. Displayed at the bottom of the screen is a guide to the relative positions of the bombs and the player.

There are four levels of difficulty but the experienced player will find it all too easy to accumulate a very high score. Perhaps the defence of Earth is becoming all too easy nowadays.

*Space Quest* is available from Express Software and costs £5.95.

Fun, 6; addictive, 5; graphics, 5.

## Killer ants

**ANT ATTACK** is possibly the ultimate sophistication of the Pacman-type game. This time the maze is three-dimensional and the ghosts are replaced by killer giant ants which can be destroyed, not by eating power pills, but by aiming and throwing hand grenades.

The screen display is best described as an animated film. You see your heroine—or hero if you so choose—climb into the walled city, search the maze, avoid or kill the giant ants and emerge once more. All that can be seen from any of four angles.

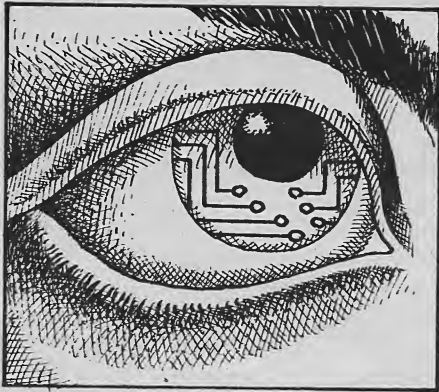
The first rescue is easy but the following ones are much more difficult. Thirteen keys are used and to defeat the ants you must be able to use each of them quickly and accurately. If a game which uses four keys makes you feel you are all fingers and thumbs, *Ant Attack* is not the game for you. For the experienced player, though, it is a fresh challenge.

*Ant Attack* is available from Quicksilver Ltd, Palmerston Park House, 13 Palmerston Road, Southampton SO1 1LL for £6.95.

Fun, 8; addictive, 8; graphics, 10.







## Biological computers

**C**OMPUTER SCIENTISTS agree that the next revolution in computing will be artificial intelligence and expert systems—computers with software which follows the patterns of human behaviour so that very complicated programs can work.

Did you know, however, that scientists are talking about what kind of computer will follow expert systems? Some think they will be biological computers, as theoretically it is possible to replace silicon in chips with molecules and proteins.

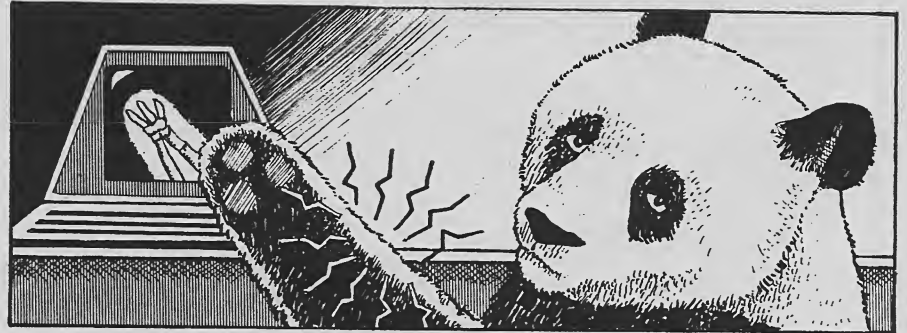
Those scientists believe that molecules and proteins will offer many more ways of using data, perhaps even to the point when those biochips can copy the way the human brain works. Many other scientists think it will never happen and, in any case, biochips are unlikely to become reality until the next century.

## Micros on the mend

**I**F YOU EVER become ill it is possible your doctor would use a microprocessor to help you recover. For instance, a microprocessor-controlled transmitter placed near a broken bone can send signals giving information on how the bone is healing and whether it is safe to put strain on it.

Microprocessors can also control the voice-boxes which doctors implant when somebody has damaged his voice, as well as the pacemakers which people with faltering hearts use to control the flow of blood around the body.

Animals, too, can be helped by computers, as the London Zoo giant panda Ching-Ching discovered when she needed an operation. Obviously pandas are far too big to tuck up in bed so her vet implanted a microprocessor in her leg to monitor her recovery.



## How chips are made

**W**HAT DOES "complementary metal oxide silicon" mean? That is the scientific term for a silicon chip which forms the heart of today's microcomputers.

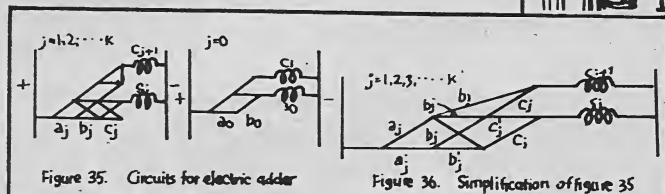
To manufacture a chip, a crystal of silicon has minute wafers sliced from it which are then inlaid with metal to form electrical circuits. The machine which slices the silicon has to work within microns—thousandths of a centimetre—otherwise electrical currents are unable to pass through the silicon semiconductor.

The highly-technical cutting machine is called a chipper and from the birth of complementary metal oxide silicon in 1969, computer buffs have borrowed the name of the machine to describe the semiconductor.

## The Computer Story

A HISTORY OF COMPUTERS  
PART THIRTEEN

Right: Claude Shannon and, below, a diagram from his thesis, which was theoretical basis of all the operations that were designed into electronic digital computers.



**I**N PRINTOUT No. 12 WE LOOKED BRIEFLY AT THE PIONEERING WORK OF PHILOSOPHERS AND LOGICIANS THAT LAID THE FOUNDATIONS FOR SOFTWARE DESIGN. BUT THE DISTINCTION BETWEEN HARDWARE AND SOFTWARE IS A BIT ARTIFICIAL—AFTER ALL, ONE CANNOT WORK WITHOUT THE OTHER—AND THEIR DEPENDENCE ON EACH OTHER IS ILLUSTRATED BY THE FACT THAT UNTIL VERY, VERY RECENTLY, IT WAS IMPOSSIBLE TO TAKE THE SOFTWARE FROM ONE MACHINE, AND RUN IT ON ANOTHER, SLIGHTLY DIFFERENT COMPUTER.

**WE'RE NOW AT THE POINT IN OUR STORY WHERE THE DESIGN OF LOGIC CIRCUITS BECAME INTEGRATED WITH THEORIES OF INFORMATION PROCESSING. THE RESULT WAS THE FIRST, PRIMITIVE ELECTRONIC CALCULATOR.**

**FOLLOWING OUR DIVERSION INTO LOGIC, WE RESUME OUR STORY WHERE WE LEFT OFF IN PRINTOUT No. 11—BACK AT THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY (MIT), WHERE VANNIEVAR BUSH'S DIFFERENTIAL ANALYSER WAS IN NEED OF CONSTANT ATTENTION TO THE RELAY CIRCUITS....**

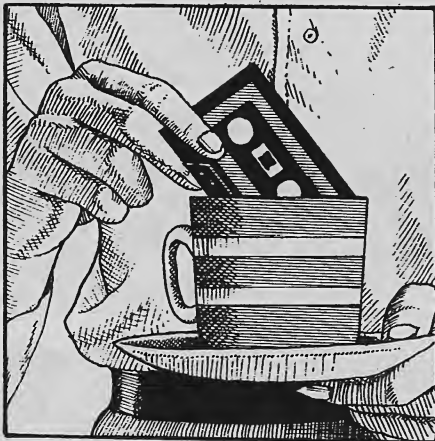


## Waterproof cassettes?

**A**LL COMPUTER users must be aware how easily water can ruin a computer system. Yet one big computer installation refused to give in when the River Avon overflowed, causing the computer complex to be flooded with foul sewage.

Although the ICL computer was ruined, its magnetic tapes were taken away despite being covered with slime. A pulley system was made quickly which pulled the tapes through jets of water to get rid of the slime and, after they had been cleaned thoroughly, warm air was used to dry the tapes.

The company claims that it was able to save the data on the tapes. Though home computers are unlikely to face anything more dangerous than a spilt cup of coffee, it is unlikely that cassettes could survive such treatment.



● Buzzwords are the jargon of the computer world and can be very confusing. Below, *Load Runner* continues its glossary of computing terms. Get buzzing.

● **Motherboard.** A large circuit board into which you can slot smaller boards, sometimes known as daughterboards or cards, to enlarge the size and increase the capabilities of your system.

● **Multi-access system.** A system which allows computer users to run programs at the same time. Usually it consists of a main computer linked to several terminals. The action of several people using a central computer at the same time, via their individual terminals, is known as time-sharing.

● **Number-crunching.** A term used when a computer can complete difficult mathematical tasks very quickly.

● **Network.** A system consisting of several linked computers, linked often via telephone lines. Computer users can communicate with each other or share their peripherals in this manner. A good example of a home computer network is the Micronet system, which enables the computer user to contact another user, often to send programs, via telephone lines.

● **Off-line.** A peripheral such as a printer or VDU is off-line if it is not attached to a computer or if it is

connected but not functioning. Once the electrical current has been switched-off and there is no power running through the computer peripherals the term off-line is applicable.

● **On-line.** The opposite of off-line. A peripheral which is connected to a computer and is working is on-line.

● **Output.** The results the computer gives from any information you have input. One example of type of data output by a computer is a program printout.

● **Paddle.** An alternative to a joystick which, like the latter, is controlled manually and can move the cursor about the VDU screen. A prime use for a paddle, which despite the name has the appearance of a round knob, is in bat-and-ball-type games.

● **PEEK.** An instruction which allows the user to look at the contents of a specific memory location. The PEEK instruction is found in the Basic language.

● **Peripheral.** Any equipment which can be attached to a computer is a peripheral. Also known as add-ons, some examples of peripherals are printers, tape recorders and television sets.

CLAUDE SHANNON WAS A YOUNG STUDENT AT MIT, EARNING A FEW EXTRA DOLLARS OPERATING THE ANALYSER IN THE EVENINGS.

UNHAPPY WITH THE RELAY CIRCUIT DESIGN, BUSH SUGGESTED TO SHANNON THAT THEY COULD BE IMPROVED USING FORMAL LOGIC, AND THAT IT WOULD MAKE A GOOD THESIS SUBJECT.

SHANNON RECONSIDERED PREVIOUS WORK ON LOGICAL MACHINES, INCLUDING THE DESIGNS OF MARQUAND AND PIERCE, AND SHOWED PRECISELY HOW ONE MIGHT CONSTRUCT ELECTRICAL CIRCUITS TO ADD, SUBTRACT, MULTIPLY, ETC. HIS THESIS SUGGESTED - ALMOST IN PASSING - THAT THE CIRCUITS COULD BE SIMPLIFIED BY USING THE BINARY COUNTING SYSTEM.

AFTER GRADUATING IN 1941, SHANNON WENT TO WORK FOR BELL TELEPHONE LABORATORIES, AND STARTED WHAT IS NOW CALLED "INFORMATION THEORY."

MODERN COMPUTERS COULD NOT HAVE DEVELOPED WITHOUT IT -

BECAUSE IT SHOWS HOW INFORMATION CAN BE REPRESENTED AS ZEROS AND ONES, AND THEN ANALYSED BY STRICT MATHEMATICAL METHODS.



MEANWHILE, ALSO AT BELL LABS, ANOTHER YOUNG MATHEMATICIAN, GEORGE STIBITZ, WAS WORKING ON PROBLEMS TO DO WITH TELEPHONE RELAYS. HE HAD NOT READ SHANNON'S PAPER, BUT AT HOME BEGAN ASSEMBLING EXPERIMENTAL CIRCUITS THAT WERE VERY SIMILAR. HE NOTICED THAT ONE OF THEM WAS EQUIVALENT TO ONE DIGIT OF A BINARY ADDER.

STRAIGHT AWAY, HE DREW UP A CIRCUIT FOR THE "CARRY" DIGIT, AND CONNECTED THEM UP TO TWO SMALL LIGHT BULBS FOR "OUTPUT". ON THE KITCHEN TABLE WAS THE WORLD'S FIRST ELEMENTARY UNIT OF AN ELECTRONIC CALCULATOR. WHAT HE DID NEXT... YOU CAN FIND OUT IN THE NEXT PRINTOUT!

Left: George Stibitz joined Bell Labs in 1930. He named his adder after the kitchen table he built it on - The Model "K."

Written and drawn by Chris Smithers



# A LOAD RUNNER cutaway of the **TANDY COLOR COMPUTER**

## A pull-out poster guide to the anatomy of the micro

**T**HE TANDY Color computer is an enhanced version of the TRS-80. Although it has certain peculiarities, the structure of the computer hardware bears close resemblance to most other computers on the market.

The power supply is led in through a connector at the side of the keyboard casing. The computer may be in operation for many hours at a time and the casing and components would become hot if a device was not included to remove heat generated by the power supply. The heat sink at the left-hand side of the casing removes any excessive heat.

The re-set switch is used to interrupt the power if the machine crashes and nothing else can be done with it. The switch enables the user to regain control of the computer.

The power transistor ensures an uninterrupted flow of current to the machine. That power flow needs to be exact and a strict control of power must be maintained to all the main components inside the machine. Particularly vulnerable are the RAM memory chips which hold the programs typed-in by the user. To maintain a steady flow of the correct voltage, the capacitors regulate any rise or fall in power. If that did not happen, one of two events would occur. If insufficient power was applied to the RAM chips, programs and data would be lost, or if there was too much power the chips would over-heat and be damaged irreparably. The machine can cope with a number of RAM chips and the memory size of the machine can be from 16K to 32K, depending on the user's needs.

Information is accepted from the keyboard by the central processor unit — CPU — which then stores it in the random access memory — RAM — chips. Those chips contain the information until the user either re-sets the machine with the power on, or switches off the power. That is because information, in the form of programs or data, is stored as electronic pulses.

The CPU co-ordinates the process of storing information in the RAM and is able to find that information when it is needed. The chip is the heart of the computer and will execute a Basic program line for line, when the user gives it a command to do so.

The crystal is a timing device which ensures that all the operations performed by the computer follow the sequence in which the CPU requires them. It is similar in operation to the crystal in digital watches.

The read only memory — ROM — contains a program which allows the user to write programs in the Basic language. That type of memory keeps a permanent record of that program, even when the power is switched off at the main supply.

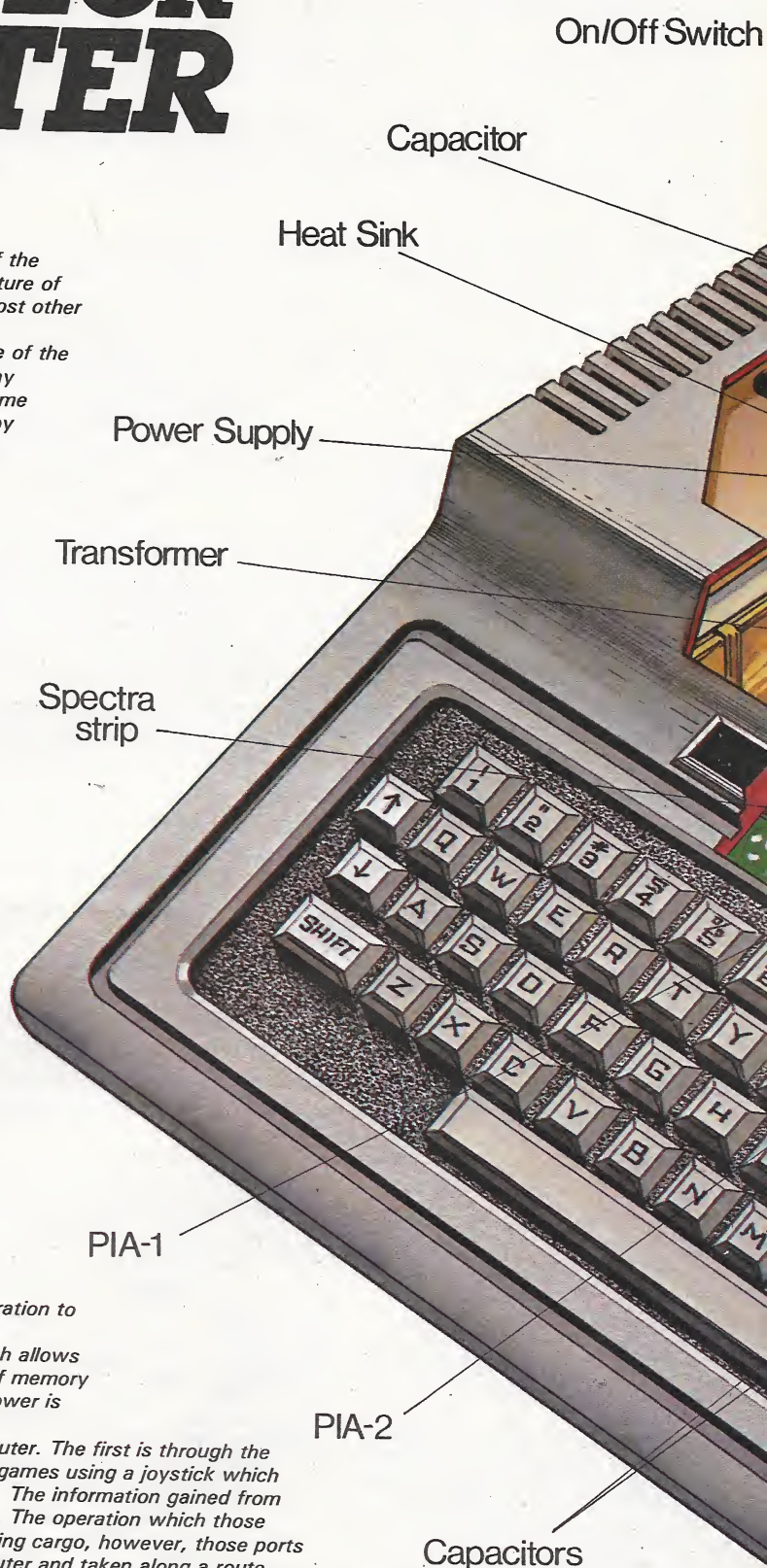
There are two other ways to put information into the computer. The first is through the two joystick ports. Those connections allow the user to play games using a joystick which behaves in the same way as the control column in an aircraft. The information gained from the joystick is channeled into the computer through the ports. The operation which those ports perform is similar to that of a sea port. Instead of handling cargo, however, those ports handle information. The information is accepted by the computer and taken along a route, called a databus, to the peripheral interface adaptors — PIA — which enable the computer to handle the information. The CPU then takes action depending on which direction the user moves the joystick.

The other input device is a tape recorder, which stores and retrieves information from the computer on to cassette tape. That is not provided with the machine and any cassette machine can be used.

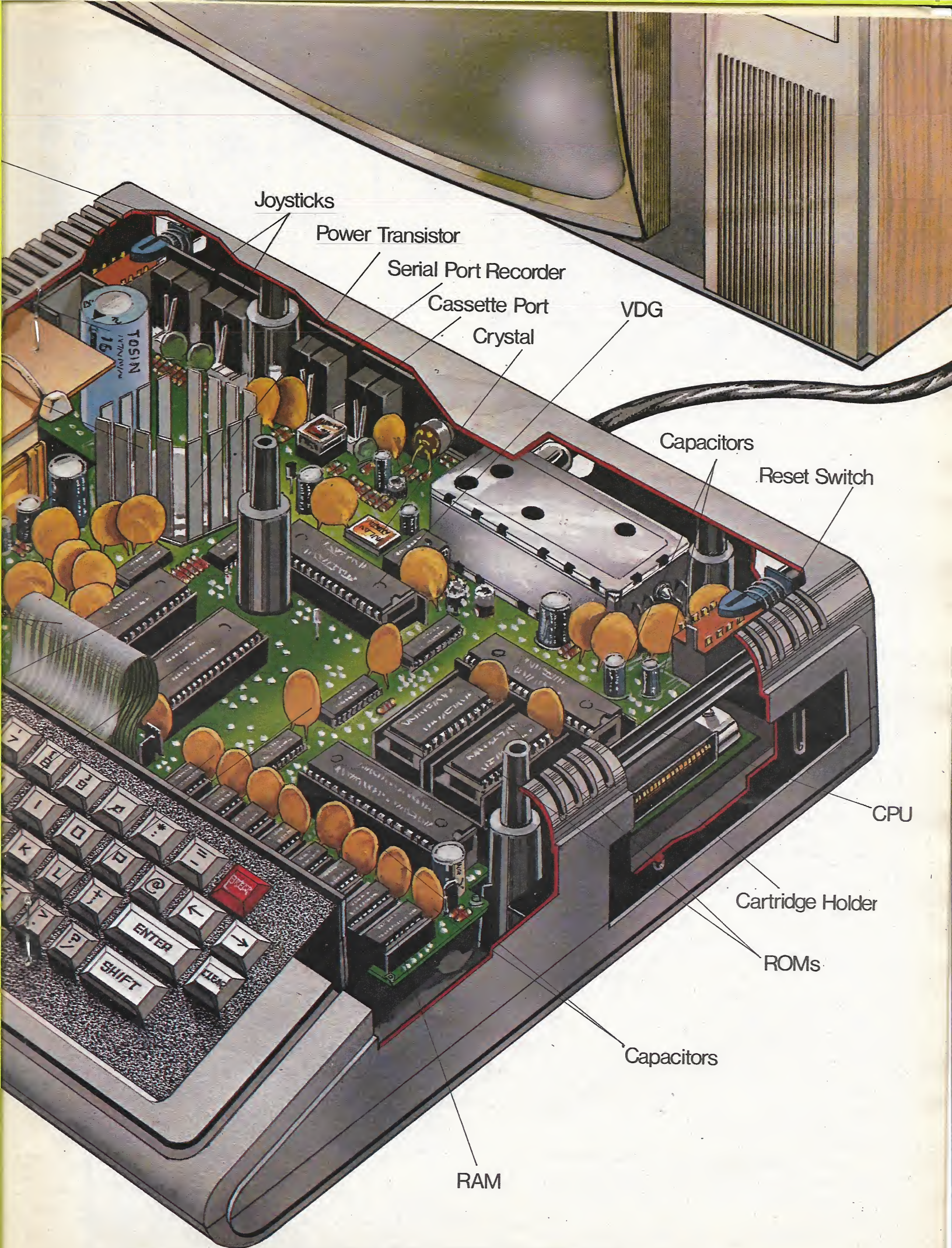
The information is transmitted from the recorder through a DIN lead to a cassette port at the back of the machine. It is then scanned by the CPU and stored in RAM.

The cartridge holder allows ROMs which have programs in them to slot into the machine. The user then has instant access to those programs.

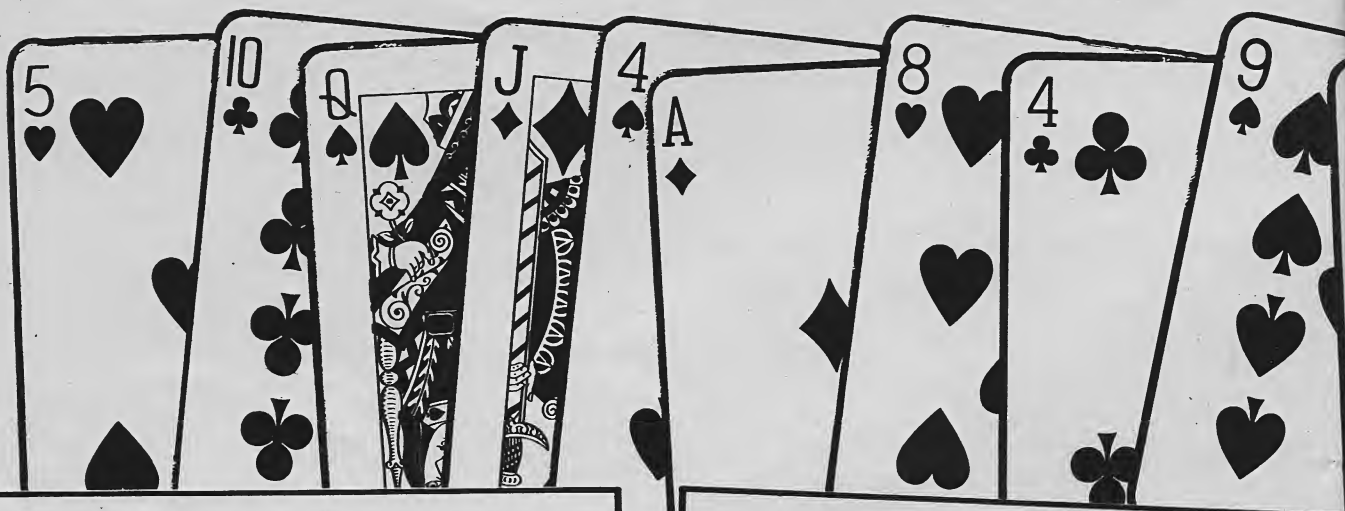
The video display generator — VDG — or colour modulator creates the colours seen on the television screen through the aerial socket of the machine. It affects the raster scan of the television set. The scan is a beam of light which goes over each cell and line of the television screen to create the picture. The modulator in the computer will help the television set to produce an image of the information selected for display by the user. The display transmitted through the aerial lead from the computer is a pictorial representation of the task in which the computer is engaged at a particular time. It could be a list of program instructions of the graphics in a game. It is the final result of the computer's processing so far as the user is concerned.











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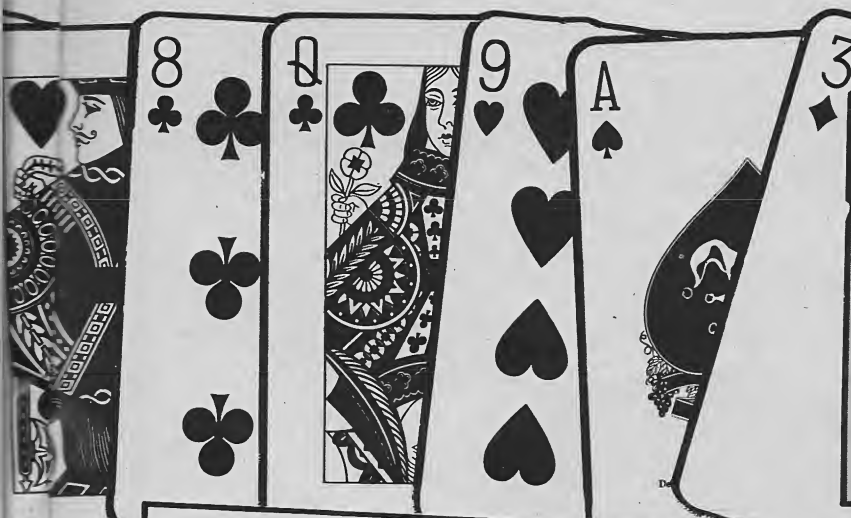
1 REM **PONTOON**
  BY PATRICK YING
2 REM STORE THE PACK
4 DIM V$(56): DIM P$(56,2): DI
M S$(56): LET MARKER=1: RANDOMIZ
E INT (RND*(RND*900))
5 FOR N=1 TO 56 STEP 14: FOR
M=N TO N+13: READ V$(M): READ P$(
M): NEXT M: IF N<42 THEN RESTOR
E 10: NEXT N
7 NEXT N
10 DATA 1,"1",2,"2",3,"3",4,"4
",5,"5",6,"6",7,"7",8,"8",9,"9",
10,"T",10,"J",10,"Q",10,"K",11,"
A"
12 REM DEFINE GRAPHICS
15 FOR N=0 TO 30: READ S: POKE
USR "A"+N,S: NEXT N
20 DATA 34,119,127,127,62,28,8
,0,8,28,62,127,62,28,8,0,8,28,42
,127,73,8,8,28,8,62,127,62,8,28,
0
25 REM STORE SUITS
30 FOR N=1 TO 56 STEP 14: READ
T$: FOR M=N TO N+13: LET S$(M)=
T$: NEXT M: NEXT N
35 DATA "a","b","c","d"
39 REM INSTRUCTIONS
40 LET L$="-----
-----": LET X$=">>>>>>>>
>>>>>PONTOON<<<<<<<<<<<<<<"
45 BORDER 4: PAPER 4: INK 0: C
LS
50 PRINT INK 1;L$: INK 6: PAP
ER 0;X$: INK 1: PAPER 4;L$
55 PRINT AT 4,2:"The aim of th
e game is to get a total of twen
ty one("PONTOON")or get the cl
osest score to twenty one with o
ut getting "BUST". In that cas
e you lose against the computer.
"
60 PRINT " At the start of ea
ch round you put forward your bet
. Your bet must not exceed your t
otal."
65 PRINT " If you lose all yo

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ur money then you have lost the
game. However if the computer lose
s all it's money before you do t
hen you would have won the game,
and the computer will get some m
ore money to have another game(Ac
e=11)."
70 PRINT AT 21,3: INK 0;">>>>";
FLASH 1;"PRESS A KEY TO PLAY";
FLASH 0;"<<<<"
75 IF INKEY$="" THEN GO TO 75
77 REM INITIALIZE VARIABLES
80 LET COMPTOT=99999: LET M=1:
LET YOURTOT=5000: LET X=0: LET
Y=0: CLS: PRINT AT 10,7: INK 0;
">>>>"; INK 2: FLASH 1;"SHUFFLING
"; FLASH 0: INK 0;"<<<<"
85 REM SHUFFLE CARDS
87 CLS: PRINT AT 10,7: INK 0;
">>>>"; INK 2: FLASH 1;"SHUFFLING
"; FLASH 0: INK 0;"<<<<"
90 FOR M=1 TO 30: LET N=INT (R
ND*55)+1: LET RN=INT (RND*55)+1
95 LET A$=P$(N): LET P$(N)=P$(
RN): LET P$(RN)=A$
100 LET A$=S$(N): LET S$(N)=S$(
RN): LET S$(RN)=A$
105 LET A=V(N): LET V(N)=V(RN):
LET V(RN)=A
110 BEEP .1,INT (RND*40)-12: NE
XT M
112 GO TO 150
115 REM DEAL CARDS ROUTINE
117 IF MARKER=1 THEN CLS: LET
VL=0
120 FOR N=M TO 56
125 IF S$(N)="a" OR S$(N)="b" T
HEN LET C=2
130 IF S$(N)="c" OR S$(N)="d" T
HEN LET C=0
135 PRINT AT X,Y: INK C: PAPER
7;S$(N);" "S$(N);AT X+1,Y;
PAPER 7;" "AT X+2,Y; PAPE
R 7;" "AT X+3,Y: PAPER 7;
INK C;" "P$(N);" "AT X+4,Y
; PAPER 7;" "AT X+5,Y; PA
PER 7;" "AT X+6,Y: INK C;

```



## PONTOON

**T**HE AIM of the game is to hold cards totalling twenty one or the nearest possible total. Holding cards which total more than twenty one will result in your losing. The player nearest to twenty one on each round wins.

Pontoon was written for the 16K or 48K Spectrum by Patrick Ying who is a member of the South Chadderton Computer Club.

All underlined letters are to be entered in graphics mode.

u

```

PAPER 7;S$(N);" "S$(N)
138 LET VL=VL+V(N)
140 IF MARKER<2 THEN LET Y=Y+9
: LET MARKER=MARKER+1: NEXT N
143 IF Y>=18 THEN LET Y=-9: LE
T X=X+8
145 RETURN
148 LET Y=Y+9: NEXT N
150 REM BET
155 CLS: PRINT AT 6,4;"compute
rs total=";COMPTOT;AT 8,4;"Your
total=";YOURTOT;AT 10,4;"To win
the game=";COMPTOT-YOURTOT;AT 12
,4; FLASH 1;"Please lay your bet
?"; FLASH 0
160 INPUT "Bet=";bet: IF bet>YO
URTOT THEN GO TO 155
165 GO SUB 115
170 IF VL>21 THEN GO TO 200
175 IF VL=21 THEN PRINT AT 20,
8;">>>>"; FLASH 1; INK 6; PAPER 2
;"PONTOON"; FLASH 0; INK 0; PAPE
R 4;"<<<<": FOR M=1 TO 200: NEXT
M: LET YTOT=VL: GO TO 240
180 REM option
185 IF INKEY$="S" OR INKEY$="s"
THEN LET YTOT=VL: GO TO 240
190 IF INKEY$="T" OR INKEY$="t"
THEN GO SUB 148
195 GO TO 170
200 REM BUST
210 PRINT AT 20,9; INK 0;">>>>";
FLASH 1; INK 6; PAPER 2;"BUST";
FLASH 0; INK 0; PAPER 4;"<<<<"
213 FOR N=1 TO 2: FOR M=30 TO 1
STEP -1: BEEP .1,M: NEXT M: NEX
T M
215 LET YTOT=0: LET YOURTOT=YOU
RTOT-BET: LET COMPTOT=COMPTOT+BE
T: LET VL=0: LET X=0
220 LET Y=0: LET M=1: LET MARKE
R=1: IF YOURTOT<>0 THEN GO TO 8
5
230 CLS: PRINT AT 10,10; INK 0
;">>>>"; FLASH 1; INK 6; PAPER 2;
"SORRY"; INK 0; PAPER 4; FLASH 0
;"<<<<"

```

```

235 FOR N=1 TO 300: NEXT N: RUN
240 REM COMPUTERS TURN
245 LET MARKER=1: LET M=1: LET
X=0: LET Y=0: CLS: GO SUB 115
248 IF VL>15 THEN GO TO 250
249 GO SUB 148: GO TO 248
250 IF VL<=21 AND VL>YTOT THEN
GO TO 270
255 IF VL=YTOT THEN GO TO 320
260 IF VL<YTOT OR VL>21 THEN G
O TO 285
270 REM COMPUTERS WON
272 PRINT AT 19,8; INK 0;">>>>";
INK 6; PAPER 2; FLASH 1;"YOU'VE
LOST"; FLASH 0; PAPER 4; INK 0;
"<<<<": FOR N=1 TO 300: NEXT N
275 LET COMPTOT=COMPTOT+BET: LE
T YOURTOT=YOURTOT-BET: IF YOURTO
T=0 THEN GO TO 230
280 LET M=1: LET YTOT=0: LET X=
0: LET Y=0: LET MARKER=1: GO TO
85
285 REM COMPUTERS LOST
290 PRINT AT 20,8; INK 0;">>>>";
FLASH 1; INK 6; PAPER 2;"YOU'VE
WON"; FLASH 0; INK 0; PAPER 4;"
<<<<"
292 FOR N=1 TO 300: NEXT N
295 LET YTOT=0: LET YOURTOT=YOU
RTOT+BET: LET COMPTOT=COMPTOT+BE
T: LET MARKER=1: LET X=0: LET Y=
0
300 IF COMPTOT=0 THEN FOR M=1
TO 3: FOR N=20 TO 1 STEP -1: BEE
P .1,N: NEXT N: NEXT M: LET COMP
TOT=2*YOURTOT: LET M=1
310 GO TO 85
320 REM DRAW
330 PRINT AT 20,9; INK 0;">>>>";
INK 6; PAPER 2; FLASH 1;"DRAW";
INK 0; FLASH 0; PAPER 4;"<<<<"
335 FOR N=1 TO 300: NEXT N: LET
MARKER=1: LET X=0: LET Y=0: LET
YTOT=0: LET M=1
340 GO TO 85
345 STOP

```



## Sharp MZ-700



**Sharp U.K. Ltd**  
**Thorn Road**  
**Newton Heath**  
**Manchester M10 9BE**

### Specifications

|                          |        |                          |
|--------------------------|--------|--------------------------|
| Price                    |        | £249.95                  |
| Numbers sold             |        | —                        |
| How sold                 |        | Assembled                |
| Processor                |        | Z-80A                    |
| Standard RAM             |        | 64K                      |
| Expansion RAM            |        | —                        |
| Basic + operating system |        | 8K ROM                   |
| Display                  | Colour | 25 lines × 40 characters |
| Tape recorder            |        | Standard                 |
| Backing storage          |        | —                        |

### Software

Solo Software, 51 Broad Street, Worcester WR1 3LR.  
 Sharpsoft, 2nd Floor, Crisallen House, 86-90 Paul Street, London EC2.  
 Kuma Software, 11 York Road, Maidenhead, Berkshire.  
 Knight TV & Computers, 108 Rosemount Place, Aberdeen AB2 4YW.

### Comments

Released in September, the Sharp MZ-700 can be used for business purposes as well as fulfilling its role of home computer. The MZ-700 is in an off-white casing, is the size of a portable typewriter, and has 69 keys which include four cursor keys, five function keys and two editing keys.

The Basic language is loaded from cassettes, thus allowing the user to run other languages and make full use of the memory capacity.

It is possible for 16 colours, eight foreground and eight background, to appear on screen at the same time.

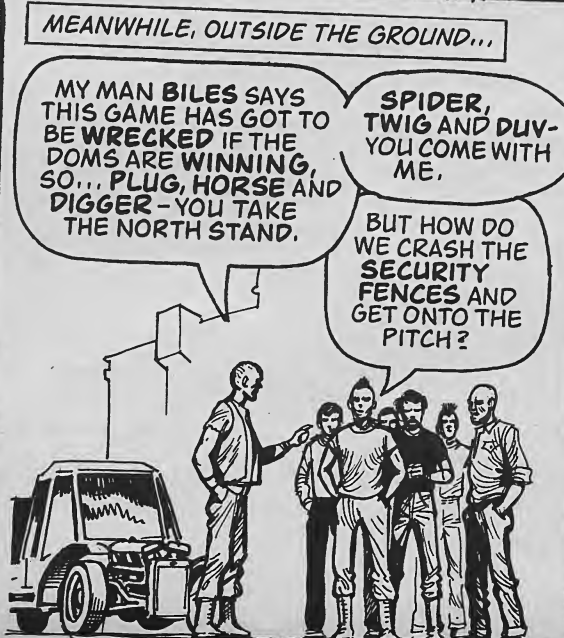
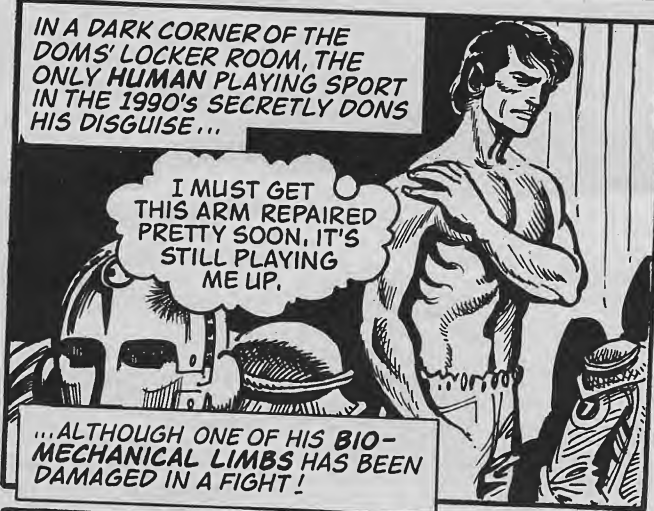
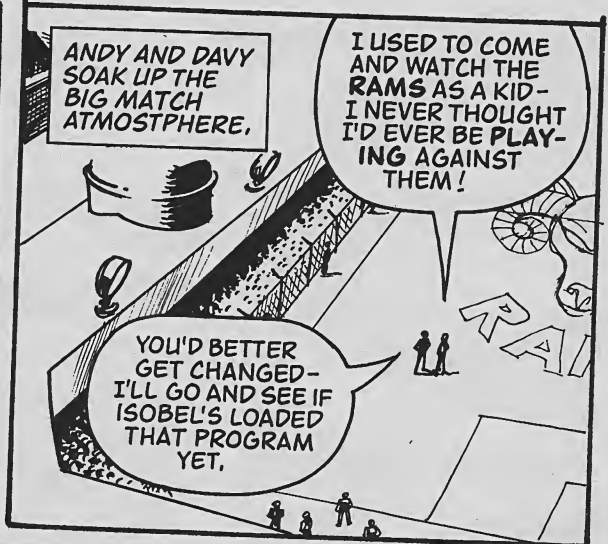
A printer/plotter has been produced specially for the MZ-700 and four ink pens—black, blue, green and red—are used to print on paper 4½in. wide. There are two versions available, either with or without the integrated printer/plotter and cassette drive, and the machines retail at £420 for an integrated version or less than £250 for a standard machine with no accessories.

Software, including games and utilities, is available and each machine is sold with two tapes containing 10 games and also a Basic cassette.

# Andy Royd-the DOMINATORS

## Rogue star!

STRICKEN WITH FINANCIAL TROUBLES, AND THREATENED BY CLOSURE, THE DOMS' TEAM OF COMPUTER-CONTROLLED ROBOPLAYERS ARE PLAYING AWAY IN A CUP MATCH WITH THE RAMS...







THERE'S THE GREENLIGHT - WE'RE ON-LINE!



THE GAME STARTS AND ANDY, THE DOMS' ROGUE STAR, BURSTS INTO THE RAMS' PENALTY AREA...



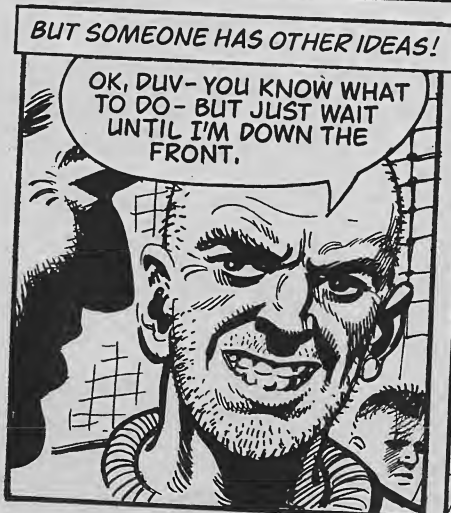
...TO PUT THEM ONE UP...



...AND SET THE SCENE FOR THE REST OF THE MATCH!

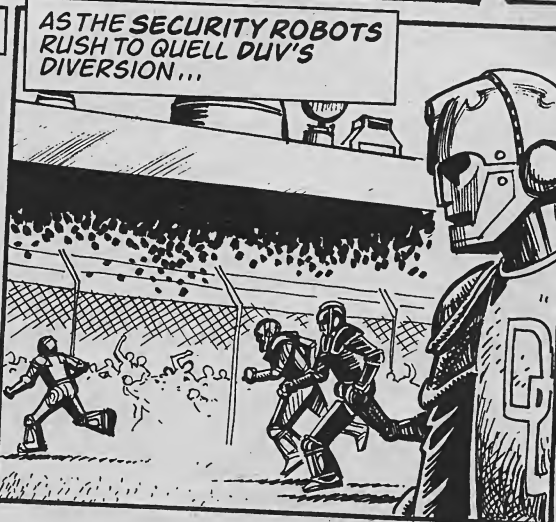


FIVE MINUTES TO GO - THREE GOALS UP! NOTHING CAN STOP US!



BUT SOMEONE HAS OTHER IDEAS!

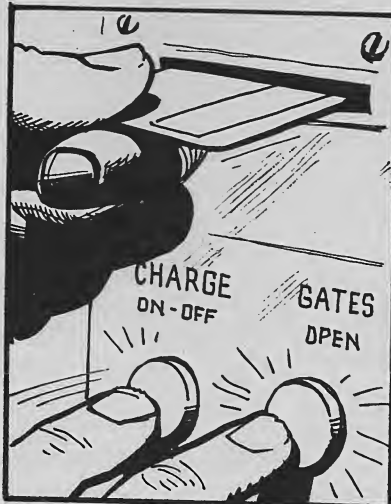
OK, DUV - YOU KNOW WHAT TO DO - BUT JUST WAIT UNTIL I'M DOWN THE FRONT.



AS THE SECURITY ROBOTS RUSH TO QUELL DUV'S DIVERSION...



HORSE - LET 'EM LOOSE YOUR END!



THE CROWD, NORMALLY HELD BACK BY THE ELECTRIC FENCES, SPILLS ONTO THE PITCH IN A MINDLESS SEETHING MASS!

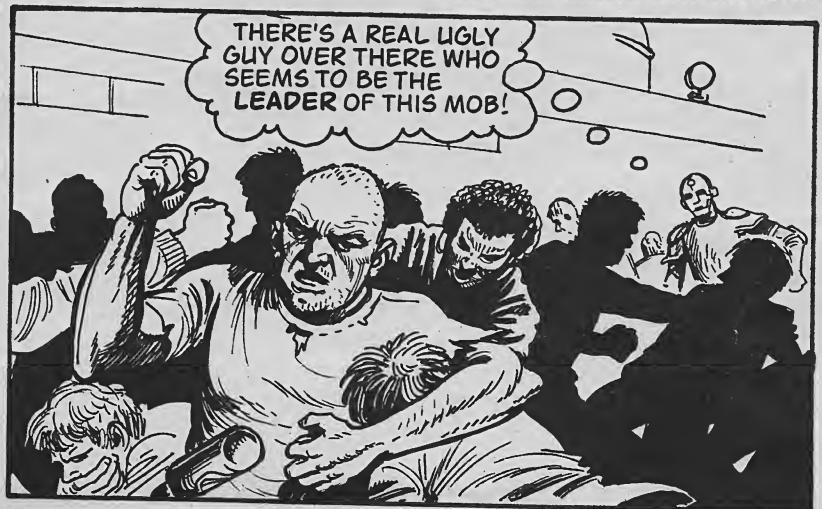


WHAT THE -?!  
WE HAVEN'T HAD CROWD TROUBLE HERE FOR YEARS!

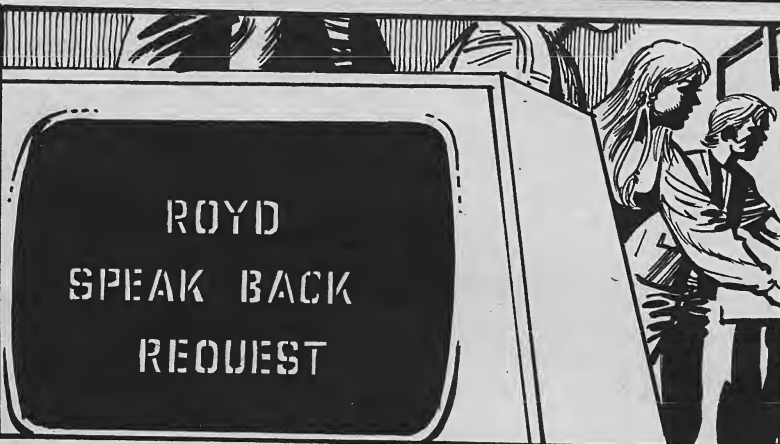
ROLAND BILES, WHO SUPPLIED THE FORGED COMPUTER CARDS, IS OVERJOYED...



I'VE A FEELING MARSHALL IS GOING TO BE BUILDING ON THE DOMS' GROUND IN THE VERY NEAR FUTURE!



THERE'S A REAL UGLY GUY OVER THERE WHO SEEMS TO BE THE LEADER OF THIS MOB!



ANDY - WHAT'S GOING ON DOWN THERE?

IT'S HAVOC!  
THERE AREN'T ENOUGH SECURITY ROBOS TO CONTROL THEM!

BUT THERE ARE OTHER ROBOS...



IF I CAN LINK INTO THEIR PROGRAM WE CAN CONTROL THE ROBO PLAYERS AND THE SECURITY ROBOTS.

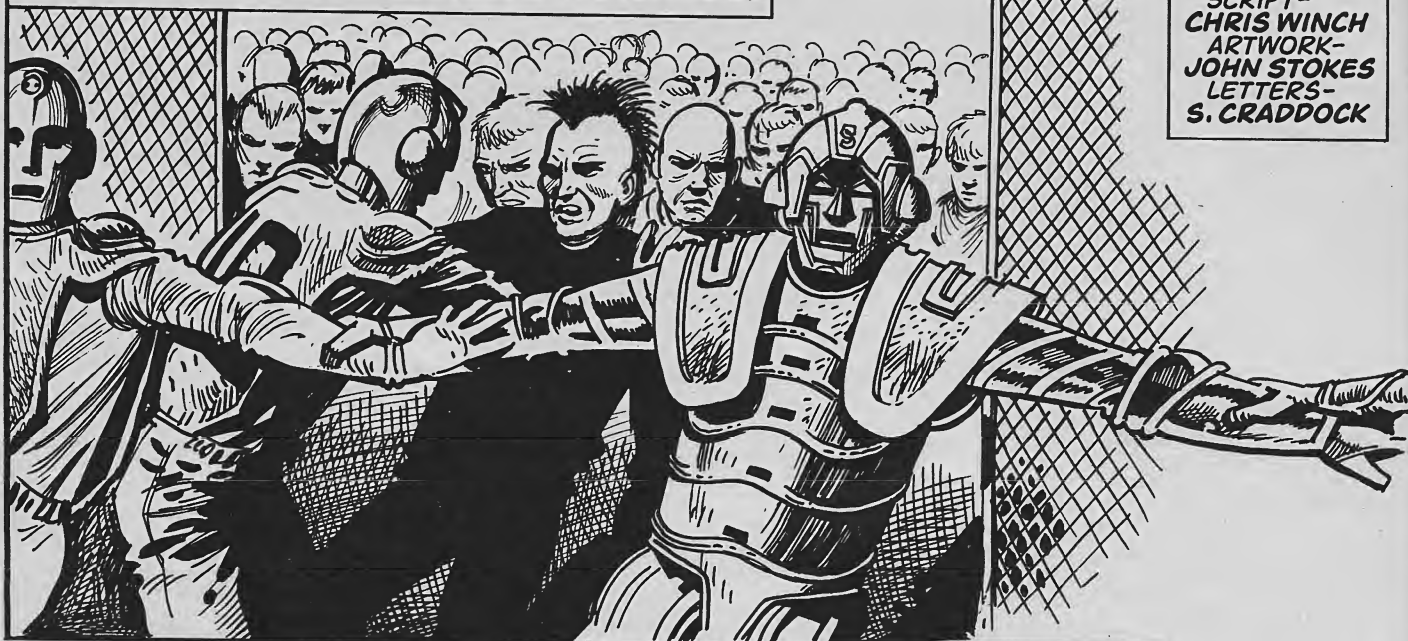
THAT'S IT!  
DAVY, SIT AT THE OTHER TERMINAL - WE'VE GOT WORK TO DO.



ISOBEL AND DAVY CONTROL THE ROBOPLAYERS AND START TURNING THE TIDE...



...UNTIL THEY FINALLY REGAIN **CONTROL** OF THE TERRACES!



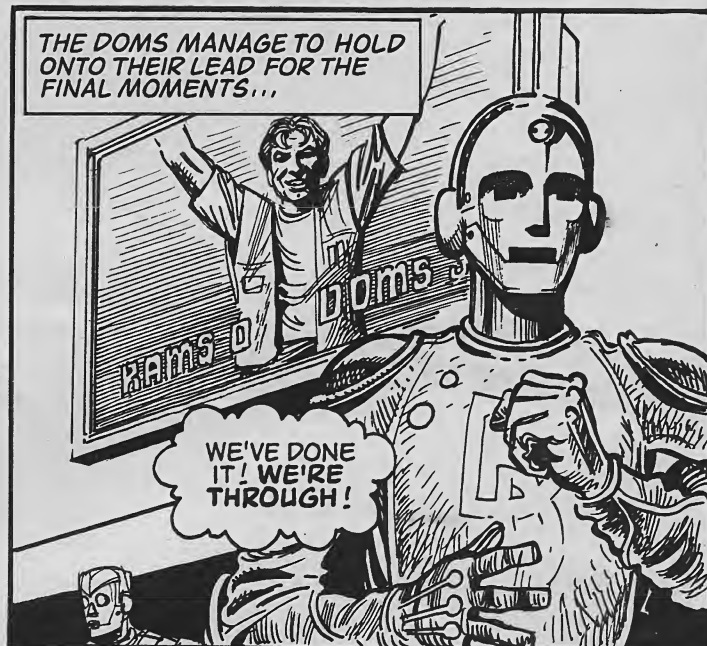
SCRIPT-  
CHRIS WINCH  
ARTWORK-  
JOHN STOKES  
LETTERS-  
S. CRADDOCK

WELL DONE, ISOBEL.  
THAT WAS NEAT. ANY  
LONGER AND WE WOULD  
HAVE HAD TO ABANDON  
THE GAME!

YEAH - AND WE CAN  
RESTART THE MATCH  
USING THE COMPUTERS'  
MEMORY TO REPOS-  
ITION THE ROBO-  
PLAYERS.



THE DOMS MANAGE TO HOLD  
ONTO THEIR LEAD FOR THE  
FINAL MOMENTS...



WE'VE DONE  
IT! WE'RE  
THROUGH!

CALL FOR YOU  
FROM SECURITY-  
COMING ON-  
SCREEN.



DAVY - YOU'D BETTER  
GET DOWN HERE - I  
THINK WE'VE FINALLY  
NAILED MARSHALL.



NEXT PRINTOUT >  
BEYOND REASONABLE  
DOUBT!

# SIMIANS WORLD

THERE IS FEAR IN THE CITY TONIGHT. AND LOSS. THEY MOURN THE DEATH OF PROGRAMMER TRUMBULL.



IT WAS SIMIAN'S INTERROGATION THAT KILLED HIM.

I HEARD HE WENT MAD TOWARDS THE END.

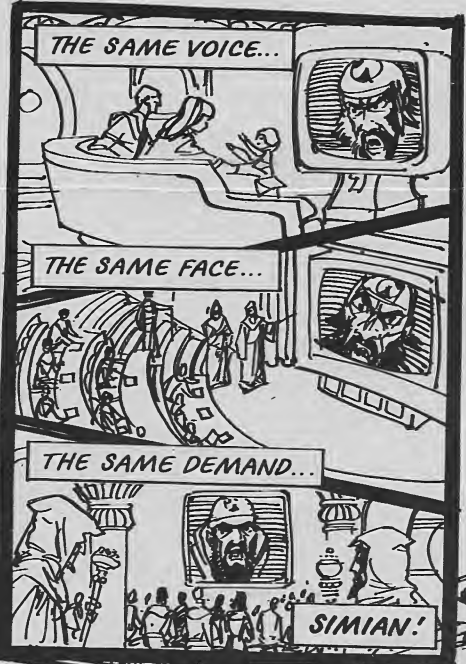
FROM EVERY TERMINAL IN THE CITY...

MAD? WELL WE ALL KNOW ABOUT MADNESS NOW, DON'T WE?

WHO ARE THEY TALKING ABOUT? WHO STRIKES FEAR IN THE HEART OF THE CITY? AHH... OF COURSE... SIMIAN!

YOU MEAN, LISTENING TO HIM EVERY DAY...?

THE BOY! GIVE ME THE BOY!



SIMIAN!

SCRIPT  
ROB BEATTIE  
ARTWORK  
JOHN CANNING  
LETTERS  
STEVE POTTER





LET US  
REVIEW THE  
FACTS FOR THE  
LAST TIME.

YES,  
AND THEN  
WE MUST  
DECIDE.

THIS  
EQUATION  
WILL ENABLE  
MEN TO JUMP  
FROM OUR  
OVERCROWDED  
WORLD TO  
ANOTHER  
GALAXY.

"SIMIAN, THE DICTATOR, TRIED  
TO EXTRACT THE INFORMATION..."

WHERE IS THE  
EQUATION?

"BUT HE HAD HIDDEN  
IT IN AN ADVENTURE  
WORLD PROGRAMMED  
INTO THE COMPUTER."

PROGRAMMER  
TRUMBULL  
DISCOVERED THE  
SECRET TO  
INTERSTELLAR  
TRAVEL...

AAAGHH!

IT'S SAFE.  
YOU CAN'T  
GET IT.

"TRUMBULL'S CHILDREN, MARC AND JAN,  
WERE DIGITISED INTO THE GAME WORLD..."



WE MUST  
FIND THE LOST  
EQUATION!

"... BUT THEY WERE PURSUED BY SIMIAN."



AFTER  
THAT, WE  
DON'T KNOW  
MUCH.

EXCEPT THAT  
TRUMBULL RESCUED  
THEM FROM THE GAME  
TOO SOON, LEAVING  
SIMIAN TRAPPED  
THERE.

...AND NOW  
SIMIAN HAS TAKEN  
CONTROL OF TRUMBULL'S  
ADVENTURE  
WORLD...



... AND THROUGH  
THAT, THE CENTRAL  
COMPUTER ITSELF!



NONE OF OUR MACHINES CAN OPERATE WITHOUT THE COMPUTER.

THOUGH STILL LOCKED INSIDE THE GAME, SIMIAN HAS BROUGHT THE CITY TO A STANDSTILL!

DAMN IT! WHY DOESN'T THE GOVERNMENT DO SOMETHING?



THE VOTE...

CARRIED. I WILL TELL THEM.

I VOTE WE GIVE THE BOY, MARK, TO SIMIAN, IF THAT IS WHAT HE WANTS, AND GET ON WITH OUR LIVES!



JAN IS GIVEN THE TASK OF PERSUADING HER BROTHER TO RE-ENTER TRUMBULL'S WORLD.



I'M STILL NOT SURE I CAN HANDLE IT.

MARC, WE WON'T AGREE UNLESS SIMIAN LETS ME SIT IN, HERE AT THE TERMINAL.

THINK, MARC. NOW HE CONTROLS THE COMPUTER, HE CAN DO ANYTHING.



JAN IS DETERMINED...

OK, JAN, I'LL DO IT. BUT YOU'LL HAVE TO HELP ME!

WE CAN DEFEAT HIM, MARC! I DON'T KNOW HOW... BUT WE'LL FIND A WAY!

OK... LET'S GO.







EXCELLENT!  
I ACCEPT THE  
BOY. THIS  
TERMINAL NOW  
HAS ACCESS  
TO THE CPU.



QUICKLY,  
AND WE WILL  
DIGITISE  
YOU!

MARC FADES  
FROM REALITY...

I'LL BE  
WITH YOU,  
MARC! TRUST  
ME!

FALLING... FALLING.

TO DISCOVER, ON ARRIVAL,  
HOW MUCH TRUMBULL'S  
WORLD HAS CHANGED...



IT'S  
COMPLETELY  
DIFFERENT.  
IT JUST LOOKS  
DEAD.

... AND TO DISCOVER THE  
EXTENT OF SIMIAN'S  
CORRUPTION!



NO!  
PLEASE GOD...  
NO!

WELCOME  
TO SIMIAN'S  
WORLD! WE  
ARE GOING TO  
PLAY A GAME,  
YOU AND I...



MARC FACES A WORLD  
HORRIBLY CHANGED...  
CAN JAN'S COMPUTER  
SKILLS SAVE HIM?

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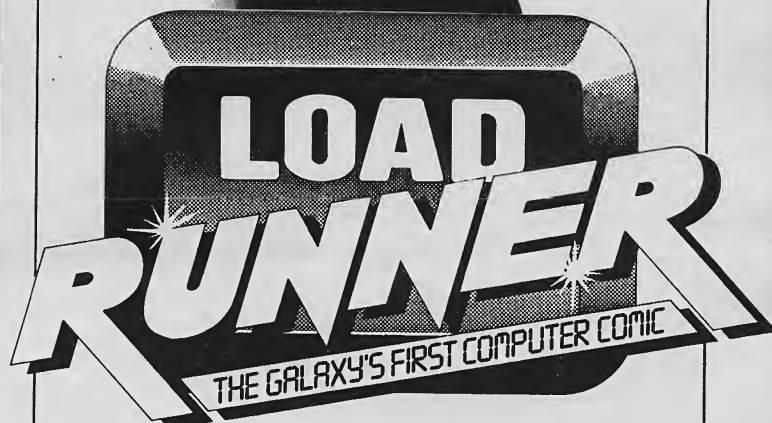
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# THE ADVENTURES OF ROM AND RAM





I HAVEN'T SEEN THIS SOFTWARE BEFORE...



WOW! THIS GAME IS BRILLIANT!

ERGG!

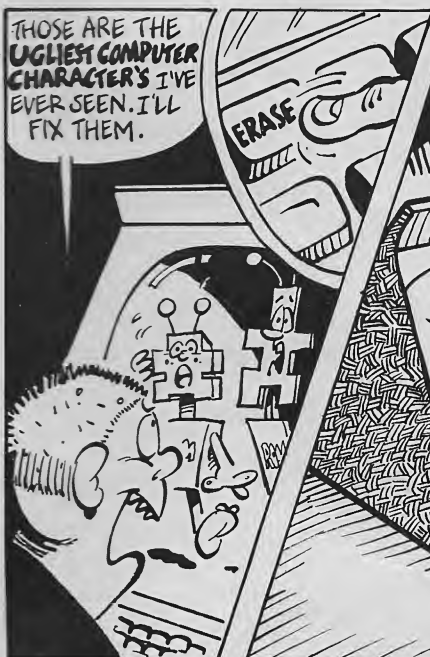
OOOAAHHH!

NGGG!

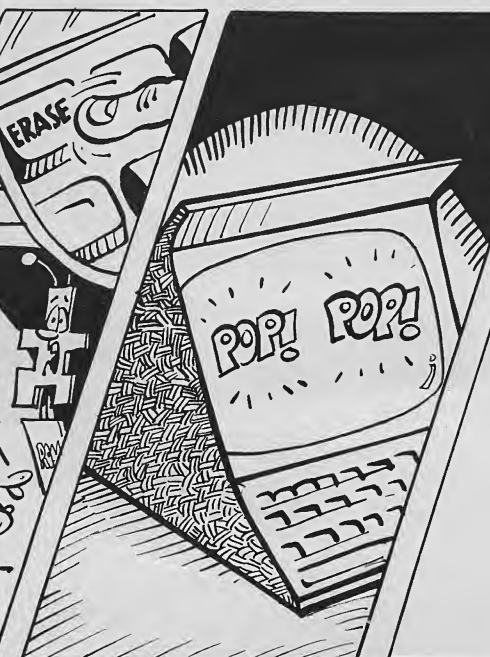


UUUGGGHHH! I THINK I NEED TO GO TO THE BATHROOM

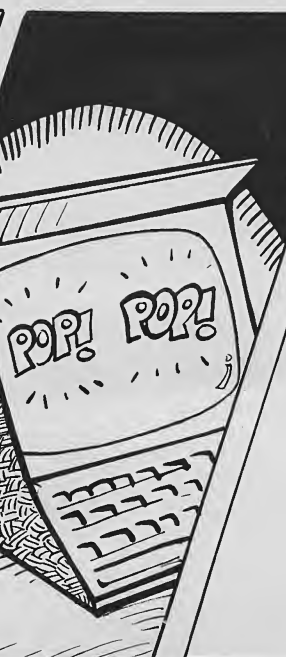
OH NO! HERE COMES THE HUMANOID WE ZAPPED WITH OUR FORCE FIELD



THOSE ARE THE UGLIEST COMPUTER CHARACTER'S I'VE EVER SEEN. I'LL FIX THEM.



ERASE



POP! POP!



GREAT JUMPING ANDROIDS, RAM, WE'RE INVISIBLE!!

WHO SAID THAT?



IT'S ANOTHER HUMANOID PLOT!

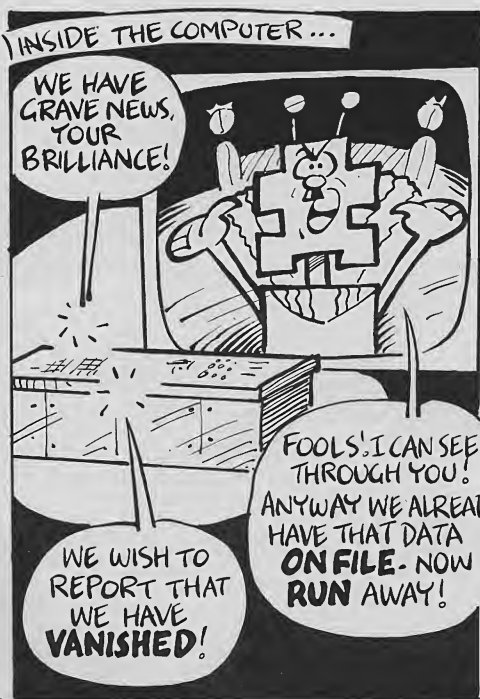
LET'S CALL ZILLYKON AND INFORM PIXEL OF WHAT HAS HAPPENED!



ON ZILLYKON... ROM & RAM ARE ON LINE OH PIXEL. THEY SAY THEY'RE INVISIBLE!

TELL THEM I CAN'T SEE THEM!

BUT THEY INSIST...



INSIDE THE COMPUTER ...

WE HAVE GRAVE NEWS, YOUR BRILLIANCE!

WE WISH TO REPORT THAT WE HAVE VANISHED!

FOOLS! I CAN SEE THROUGH YOU! ANYWAY WE ALREADY HAVE THAT DATA ON FILE - NOW RUN AWAY!



LATER

THIS NEW INVISIBLE SPACE INVADERS PROGRAM IS GREAT!

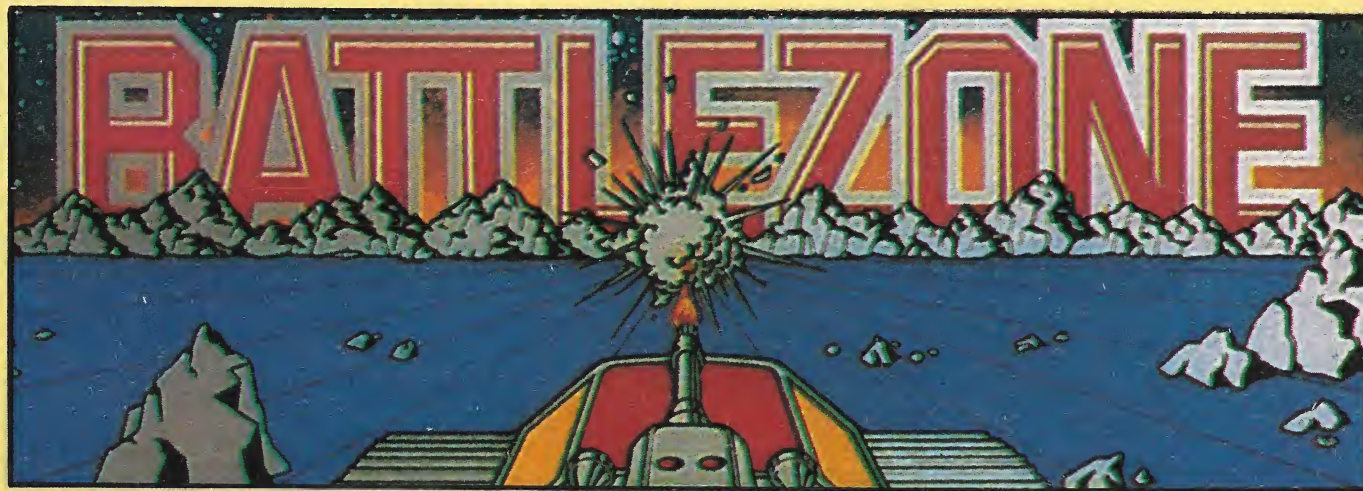
OW!

OUCH!

I JUST DON'T KNOW... OUCH... WHAT THE HUMANOID... OW... SEE IN THIS GAME ... OUCH!

ROMERAM MATERIALISE AGAIN IN THE NEXT PRINTOUT!





**B**ATTLE ZONE, one of the first 3D games, is so realistic to play that the American Army bought 500 units for its mess halls to help soldiers attain higher reflex levels and sharper awareness. The game is set on a futuristic battlefield; the player sees a black screen with scenery outlined in green and objects similar in graphics to Asteroids.

The player views the action through special periscopic sights and movement in all directions is made easy by the use of two joystick controllers, one of which has a fire button on top. Looking through the sights the player has to line-up the enemy targets—tanks, supertanks, saucers and missiles—inside the cross wires and blast them into oblivion.

Tanks move about the play field and are easy to hit but as the score increases super-tanks appear. They are similar to the ordinary tanks but move with greater speed and are more accurate. The strange missiles which appear from the sky behave in an alarming manner by zigzagging towards the player, and they must be destroyed just before impact, or destruction is certain. Saucers float harmlessly about the screen and should be picked-off to boost the score. Pyramids and blocks of various sizes are placed at random about the battlefield and can act as useful barriers to hide behind.

At the top of the screen there is a realistic radar scanner which shows the position of enemy tanks. To the left of the scanner the enemy position is stated clearly — left, right, behind, and so on.

It is easy to understand why the United States Army felt *Battle Zone* was valuable for recruits' free-time training.

## Software

**W**ATCH for the Atari VCS *Battlezone*, which features full colour graphics, to be released soon.

For the 48K Spectrum there is *Rommel's Revenge*, from Artic Computing.

Providing processor power to The Controller in publishing Load Runner were Bill Scolding (editor) and June Mortimer (administration). Chris Winch, Harold Mayes MBE, Nigel Clark, Terry Cartwright and Richard Hease linked into the system, Jenny Parrott, Cameron McDade, Akil Dhalla, Nicola, Rebecca, Richard and Eric Deeson contributed. The corporate might of ECC Publications of 196-200 Balls Pond Road, London N1 4AQ was utilised continually. Printout by Cradley Print PLC, Warley, West Midlands. Distributed by Spotlight Magazine Distribution Limited, 01-607 6411. ISSN 0264-8369. © 1983 Load Runner.